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ABSTRACT

The purpose of this study was to measure the effectiveness of various newsletter formats in increasing knowledge among dairymen. The subject matter of the newsletter was harvesting, storing, and feeding of high-moisture corn. The universe of the study was the dairy farmers in seven counties who attended a five-week clinic relating to herd health and management. The dairymen in all counties took a pre-and post-test of multiple choice questions. The farmers in two counties served as a control group and did not receive newsletters. Four groups of dairymen selected at random in the other five counties received newsletters in one of the following formats: pictorial (one letter weekly for three weeks); outline (one letter weekly for three weeks); conventional paragraph (one letter weekly for three weeks); and pictorial (combination of three letters received at one time). There was no significant difference in knowledge gained among dairy farmers receiving the newsletter with different formats. There was a significant difference between dairymen who received the letters and those who did not: the ones who received them had higher knowledge scores. Younger dairymen showed a higher gain than older ones. Other individual variables were not related to knowledge gained. (author/mf)

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Effectiveness of Cooperative Extension Service Newsletters With Different Formats Received by Dairymen in Pennsylvania

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The basic purpose of the study was to measure differences of knowledge among dairymen after they received Extension newsletters of different formats.

Null hypotheses established were:

1. There are no differences among scores of dairy farmers receiving newsletters in four different formats as measured by: letter 1, letter 2, letter 3 and total letters.
   a. There are no differences in mean post-test scores among dairymen who received three newsletters of pictorial, outline, or paragraph format.
   b. There is no difference in mean post-test scores among dairymen who received three newsletters of pictorial design at weekly intervals or received all letters at one time.
2. There is no difference in mean post-test scores of dairymen who received or did not receive newsletters.
3. There is no difference in mean post-test scores of dairymen receiving newsletters in each format when classified according to:
   a. Age
   b. Education

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c. Status (full-time or part-time)

d. Per cent of off-farm employment.

e. Years of farming

f. Number of cows

g. Future herd size anticipated

h. High-moisture corn usage in the future

Why This Type of Research?

Mass media methods of disseminating educational materials are increasing in the Cooperative Extension Service. The use of newsletters has increased approximately 200,000 annually during the past ten years in the Pennsylvania Extension Service. It is imperative that the effectiveness of this educational tool be maximized. Surveys among Pennsylvania counties indicated that newsletters ranked number one among men and women when given a choice of preferred methods of receiving information. These choices included radio, television, newspaper, meeting, personal visit, telephone and newsletter.

Previous research showed that the value of pictures varies with the objectives of the presentation. Major uses for illustrations in a newsletter are to inform, to create emotional response, to give a touch of humor and to add design and variety, according to a study by Burke.

Using the outline format is one way to achieve brevity when preparing newsletters. Burke emphasized the importance of Psychological brevity, the reader feels he has gained much information in a few lines. The reader feels this way because the writing is condensed. It is also easier to informalize when using short, incomplete, fragmented sentences.

Experimental Design

Dairy farmers, from seven counties in Pennsylvania, attending a five week clinic related to herd health and management were the participants in the study. The following design for the study was used:

	1st Week	2nd Week	3rd Week	4th Week	5th Week
Pictorial Format A	Pre-Test	1st letter	2nd letter	3rd letter	Post-Test
Outline Format	Pre-Test	1st letter	2nd letter	3rd letter	Post-Test
Paragraph Format	Pre-Test	1st letter	2nd letter	3rd letter	Post-Test
Pictorial B	Pre-Test		Rec'd all 3 letters at one time		Post-Test
Control	Pre-Test				Post-Test

Differences among participants in the various treatment groups were controlled by random assignment to the format group. Age, educational level, status of full or part-time farmer, tenure, present and future size of operation and plans for using high-moisture corn were recorded when pre-test was administered and used as additional controls on the experiment. The percent of newsletters received were recorded on a scale attached to the post-test. A 30-question multiple choice subject matter test was designed and used as the criterion measure. The testing instrument was reviewed by specialists at The Pennsylvania State University to assure adequacy and accuracy. The tests were scored by the investigator, recorded on code sheets and then transferred to IBM cards and prepared for analysis.

The design may have been strengthened if all dairymen in the participating counties had been involved in the study rather than only those attending the dairy clinic. Larger numbers of participants in each treatment group would have also strengthened the study.

Significant Findings Included:

The two independent variables selected for adjusting the post-test score were the pre-test score and the percent of newsletters read. These two variables explained 46% of the post-test variance. Multiple regression with parsimony was used to select the covariates for each criterion measure for analysis of covariance.

Table 4. Mean Test Scores of Dairymen Receiving Newsletters of Different Formats

	Total Newsletters				
Format	N	Per Cent Read	Mean Pre-Test	Mean Post-Test	Adj. Mean Post-Test
1. Pictorial A	30	55.10	14.5	18.4	18.1
2. Outline	29	52.31	14.1	18.1	18.1
3. Paragraph	30	33.60	13.9	15.0	17.6
4. Pictorial B	34	59.70	14.6	19.3	18.9

No significant differences among adjusted post-test scores by analysis of covariance.

No significant differences among adjusted post-test scores by analysis of covariance when formats 1, 2, and 3 were compared.

No significant differences between adjusted post-test scores by analysis of covariance when format 1 and 4 were compared.

Table 7. Mean Test Scores of Dairymen That Received or Did Not Receive Newsletters

Format	N	Mean Pre-Test	Mean Post-Test	Adj. Mean[a]
Received Newsletters	123	14.28	18.22	18.38
No Newsletters	30	16.13	15.83	15.19

[a]Significant difference between adjusted mean post-test scores at the .01 level by analysis of covariance.

Table 8. Mean Post-Test Scores of Various Age Groups of Dairymen Receiving Newsletters of Different Formats

Age	N	Total Mean Post-Test[a]
20 - 29	29	18.41
30 - 39	28	19.29
40 - 49	41	18.73
50 - 59	19	16.53*
60 or over	6	14.7*

[a]Significant differences among mean post-test scores at the .05 level by analysis of variance.

*Total post-test scores of dairymen 60 years of age and over were significantly lower at the .05 level than scores of dairymen in age groups 20-29, 30-39, and 40-49 by Duncan's multiple range test.

*Total post-test scores of the 50-59 age group were significantly less than the scores of the 30-39 age group at the .05 level by Duncan's multiple range test.

Table 15. Per Cent of Newsletters Read and the Test Scores of Dairymen Receiving Newsletters

Farmers Classified by % Read		High-Moisture Corn Subject Matter Test Scores	
Per Cent Read	N	Per-Cent	Post-Test
0 - 4	10	14.2	15.6
5 - 14	13	13.7	15.2
15 - 24	12	14.0	17.0
25 - 34	19	12.1	17.8
35 - 44	6	14.5	19.3
45 - 54	14	13.4	17.3
55 - 64	2	17.0	20.5
65 - 74	12	14.8	18.9
75 - 84	5	15.0	20.8
85 - 94	2	17.5	18.0
95 -100	28	15.7	20.6

Percent of newsletters read correlated .427 with the post-test score, significant at the .01 level.

Thirty-five persons who read an average of less than 25 percent of the material received had a mean post-test score of 15.9

Thirty-five persons who read an average of 75 percent or more of the material received had a mean post-test score of 20.5.

Other independent variables including education, status (full-time or part-time), per cent off-farm, number of cows, future herd size and high-moisture corn usage revealed no significant differences among post-test scores when compared by analysis of variance.

Contributions of the Study Would Include:

1. Newsletters prepared using pictorial, outline, or paragraph format may be used in Extension with similar results of learning.
2. Newsletters of considerable length (up to ten pages) will be read by farmers if the pictorial format is used.
3. Increased knowledge of the subject matter was evident among farmers receiving newsletters.

Additional research is needed to determine effectiveness of the following types of Extension newsletters:

1. Newsletters prepared by Extension specialists and mailed on a state-wide basis.
2. Newsletters of general interest mailed to specific clientele groups.

Satisfaction of the Researcher

It was gratifying to have excellent cooperation of county agents in the counties involved. It was surprising that the participants read as much of the newsletters as indicated -- this is a new feeding concept for Pennsylvania dairymen.

The average educational level of slightly above 12th grade for the participants was also surprising to me. Probably the greatest joy for me was when I found that my control group did not increase their test scores and that the different treatment groups all had increased scores on the post-test.

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